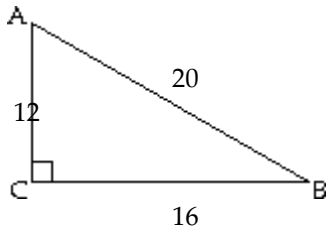
MAC 1114 Review for Exam 1

Name_____

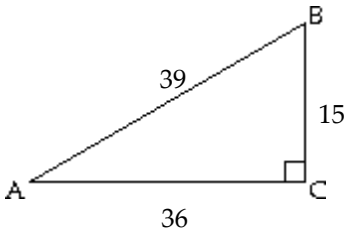
Find the exact values of the indicated trigonometric functions. Write fractions in lowest terms.

1) 1) _____



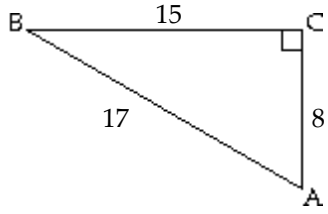
Find sin A and cos A.

2) 2) _____



Find tan A and cot A.

3) 3) _____



Find sec A and csc A.

Find the requested function value of θ.

4) If $\sin\theta = \frac{5}{16}$, find sec θ. 4) _____

5) If $\sin\theta = \frac{3}{4}$, find cos θ. 5) _____

6) If tan θ = 1.5, then find csc θ. Round to nearest tenths. 6) _____

Perform the calculation.

7) 180° – 74°55′11″ 7) _____

Convert the angle to decimal degrees and round to the nearest hundredth of a degree.

8) 88°33′49″ 8) _____

Convert the angle to degrees, minutes, and seconds.

9) 45.71° 9) _____

Use a calculator to find the function value to four decimal places.

10) sin 21°22'33'' 10) _____

11) csc 51°45'37'' 11) _____

12) cot 20.2° 12) _____

Find the acute angle θ, to the nearest hundredth of a degree, for the given function value.

13) sec θ = 6.27 13) _____

14) cot θ = 1.577 14) _____

Use the cofunction and reciprocal identities to answer the question.

15) sin 31° = cos _____ = $\frac{1}{\text{_____}\ 31°}$ 15) _____

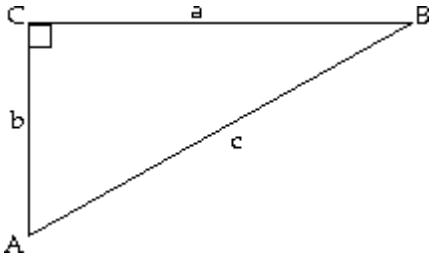
16) cos 35° = _____ 55° = $\frac{1}{\text{_____}\ 35°}$ 16) _____

17) cot 51° = tan _____ = $\frac{1}{\text{_____}\ 51°}$ 17) _____

18) Given that sin 78.8° = 0.9810 and cos 78.8° = 0.1942, find the six function values of 11.2°. 18) _____

Solve the right triangle for all missing sides and angles to the nearest tenth.

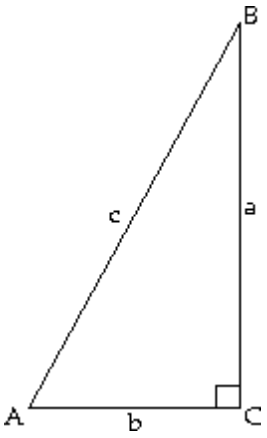
19) 19) _____



c = 9

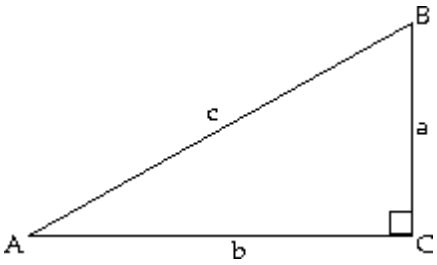
A = 67°

20) 20) _____



a = 9
A = 62°31'

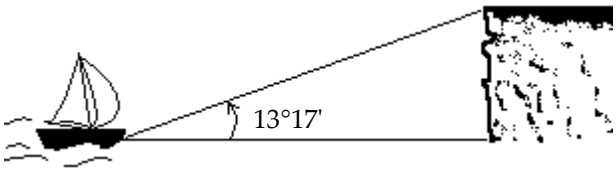
Solve the right triangle.



21) b = 110, c = 380 21) _____

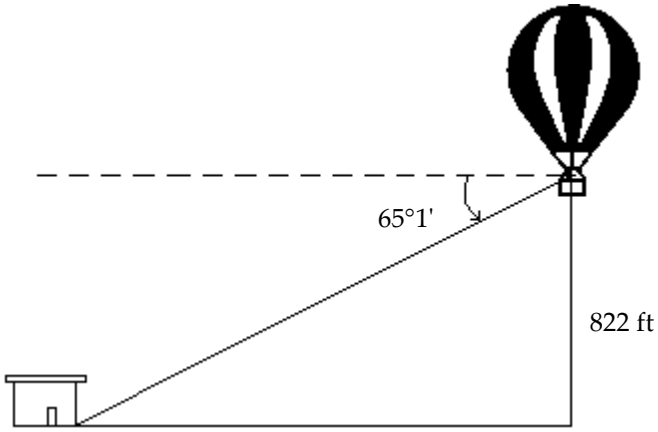
Solve.

22) From a boat on the lake, the angle of elevation to the top of a cliff is 13°17'. If the base of the cliff is 2972 feet from the boat, how high is the cliff (to the nearest foot)? 22) _____

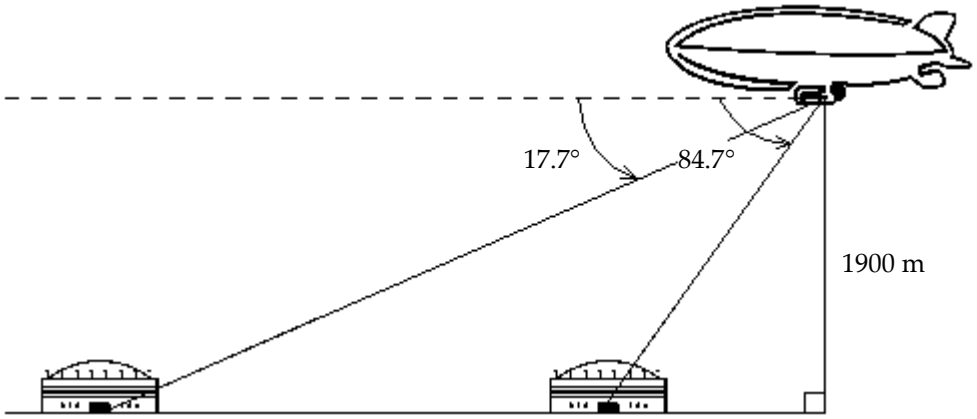


2972 ft

23) From a balloon 822 feet high, the angle of depression to the ranger headquarters is 65°1'. How far is the headquarters from a point on the ground directly below the balloon (to the nearest foot)? 23) _____



24) A blimp is 1900 meters high in the air and measures the angles of depression to two stadiums to the west of the blimp. If those measurements are 84.7° and 17.7°, how far apart are the two stadiums to the nearest meter? 24) _____



Find the angle of smallest possible positive measure coterminal with the given angle.

25) −11° 25) _____

26) 1324° 26) _____

Draw the given angle in standard position. Draw an arrow representing the correct amount of rotation. Find the measure of two other angles, one positive and one negative, coterminal with the given angle.

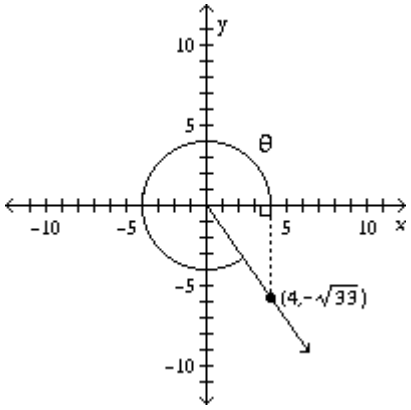
27) 50° 27) _____

Solve.

28) Find the complement of an angle whose measure is 47°16'1''. 28) _____

Find the trigonometric function value for the angle shown.

29) cos θ 29) _____



Suppose that θ is in standard position and the given point is on the terminal side of θ. Give the exact value of the indicated trig function for θ.

30) (−5, 12); Find sin θ. 30) _____

31) (−4, −9); Find tan θ. 31) _____

A is an angle in standard position and satisfies the given conditions. Find the indicated trigonometric function value of A. Do not use a calculator.

32) The terminal side of A is in quadrant IV and lies on the line 8x + 5y = 0. Find cot A. 32) _____

The terminal side of angle θ in standard position lies on the given line in the given quadrant. Find sin θ, cos θ, and tan θ.

33) y = 5x; quadrant III 33) _____

Find the trigonometric function value of angle θ.

34) $\cos\theta = \frac{2}{9}$ and θ in quadrant IV 34) _____

Find sin θ.

Find the reference angle for the given angle.

35) 300° 35) _____

36) −570° 36) _____

37) A = 191.7° 37) _____

Without using the trigonometric keys, use a calculator and the given trigonometric values to find the indicated value.

38) Given: 38) _____

sin 71° = 0.9455
cos 71° = 0.3256
tan 71° = 2.9042

Find cos 251°.

Use the appropriate identity to find the indicated function value. Rationalize the denominator, if applicable. If the given value is a decimal, round your answer to three decimal places.

39) csc θ, if sin θ = −0.1623 39) _____

40) tan θ, if cot θ = $\frac{\sqrt{5}}{8}$ 40) _____

Find the sign of the six trigonometric function values for the given angle.

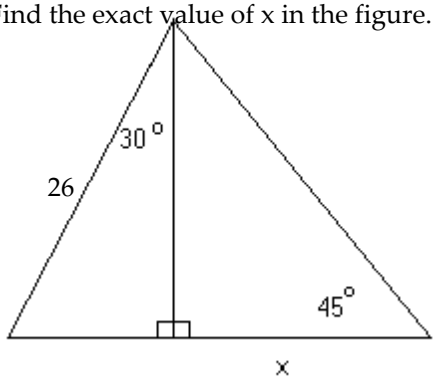
41) 556° 41) _____

Solve the problem for the given information.

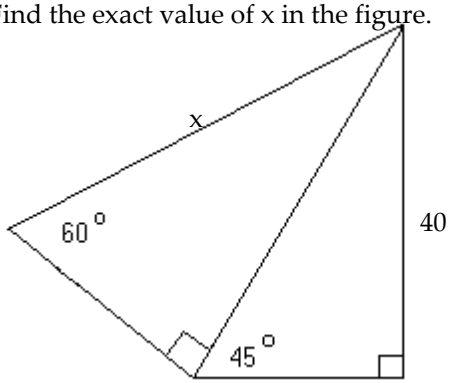
42) What angle does the line y = x make with the positive x−axis? 42) _____

Solve the problem.

43) Find the exact value of x in the figure. 43) _____



44) Find the exact value of x in the figure. 44) _____



Give the exact value.

45) cos 210° 45) _____

46) tan 300° 46) _____

47) sec 150° 47) _____

Find the exact trigonometric function value.

48) csc (−2100°) 48) _____

Find all values of θ, if θ is in the interval [0, 360°) and has the given function value.

49) $\sin\theta = -\frac{1}{2}$ 49) _____

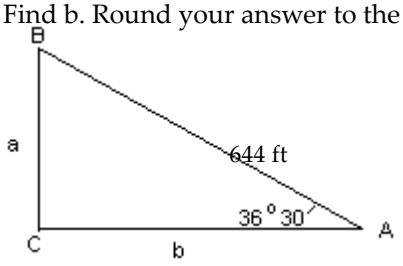
50) $\cos\theta = -\frac{\sqrt{3}}{2}$ 50) _____

Use a calculator to find a nonnegative angle less than 360 ° for the function value.

51) $\sin\theta = -0.1736$, $180° < \theta < 270°$ 51) _____

Solve for the requested quantity.

52) Find b. Round your answer to the hundredths place. 52) _____



Solve the problem.

53) A fire is sighted due west of lookout A. The bearing of the fire from lookout B, 13.3 miles due south of A, is N 59°37'W. How far is the fire from B (to the nearest tenth of a mile)? 53) _____

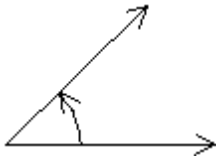
Solve.

54) An airplane travels at 125 km/h for 3 hr in a direction of 349° from St. Louis. At the end of this time, how far west of St. Louis is the plane (to the nearest kilometer)? 54) _____

Solve the problem.

55) A ship travels 61 km on a bearing of 37°, and then travels on a bearing of 127° for 151 km. Find the distance from the starting point to the end of the trip, to the nearest kilometer. 55) _____

1) $\sin A = \frac{4}{5}$; $\cos A = \frac{3}{5}$
2) $\tan A = \frac{5}{12}$; $\cot A = \frac{12}{5}$
3) $\sec A = \frac{17}{8}$; $\csc A = \frac{17}{15}$
4) $\frac{16\sqrt{231}}{231}$
5) $\frac{\sqrt{7}}{4}$
6) 1.2
7) 105°4′49″
8) 88.56°
9) 45°42′36″
10) 0.3645
11) 1.2732
12) 2.7179
13) 80.82°
14) 32.38°
15) 59°, csc
16) sin, sec
17) 39°, tan
18) sin 11.2° = 0.1942; cos 11.2° = 0.9810; tan 11.2° = 0.1980
    csc 11.2° = 5.1484; sec 11.2° = 1.0194; cot 11.2° = 5.0504
19) B = 23°, a = 8.3, b = 3.5
20) B = 27°29', c = 10.1, b = 4.7
21) A = 73.2, B = 16.8, a = 363.7
22) 702 ft
23) 383 ft
24) 5777 m
25) 349°
26) 244°
27) 410° and −310°



28) 42°43'59''
29) $\cos \theta = \frac{4}{7}$
30) $\frac{12}{13}$
31) $\frac{9}{4}$
32) $-\frac{5}{8}$

33) $\sin\theta = -\frac{5\sqrt{26}}{26}$;

$\cos\theta = -\frac{\sqrt{26}}{26}$;

$\tan\theta = 5$

34) $-\frac{\sqrt{77}}{9}$

35) 60°

36) 30°

37) 11.7°

38) −0.3256

39) −6.161

40) $\frac{8\sqrt{5}}{5}$

41) Positive: tangent and cotangent; negative: sine, cosine, secant, cosecant

42) 45°

43) $13\sqrt{3}$

44) $\frac{80\sqrt{6}}{3}$

45) $-\frac{\sqrt{3}}{2}$

46) $-\sqrt{3}$

47) $-\frac{2\sqrt{3}}{3}$

48) $\frac{2\sqrt{3}}{3}$

49) 210° and 330°

50) 150° and 210°

51) 190°

52) b = 517.68 feet

53) 26.3 mi

54) 72

55) 163 km